Rationale Sheet
NPDES General Permit TNR10_0000
General NPDES Permit for Storm Water Discharges Associated with Construction Activities
February, 1999

I. Introduction

This Rationale Sheet sets forth the Division's rationale for permit conditions for the reissuance of the above-referenced NPDES general permit.

The present permit was promulgated on September 26, 1992, as State Rule 1200-4-10-.05 - General Permit for Storm Water Discharges Associated with Construction Activities. This permit expired September 26, 1997.

II. Background

In 1990, the EPA issued an NPDES rule that required a wide range of industrial activities to obtain permits to discharge storm water runoff. Among those activities defined as industrial is the following:

> construction activity including clearing, grading and excavation activities except operations that result in the disturbance of less than five acres of total land area and which are not a part of a larger common plan of development or sale. [40 CFR 122.26(b)(14), category (x)]

The State of Tennessee promulgated a general permit rule applicable to such construction activities, which became effective on September 26, 1992. From that time until September, 1997, the Division has permitted over 2700 construction sites via this general permit.

Permitted construction activities have included housing subdivisions, commercial and industrial buildings, golf courses, utility lines, sewage treatment plants, and roads. Various land clearing activities, where no construction per se has occurred, have also been covered under this general permit; for example, off-site borrow pits for fill material. Project sizes have ranged from less than five acres up to 2800 acres. 182 of the sites have been over 100 acres.

III. Construction activity and its effects on water quality

The amount of sediment in runoff from construction sites is typically 10 to 20 times the amount in runoff from agricultural lands, sometimes as high as 100 times that of agricultural lands, and is 1,000 to 2,000 times that of forest lands. Even a small amount of construction may have a significant negative impact on water quality in localized areas. Over a short period of time, construction sites can contribute more sediment to streams than was deposited previously over several decades.

Therefore, to protect the quality of the waters of Tennessee, it is important that operators of construction sites use good construction management practices and erosion and sediment controls. **This NPDES permit will set forth a set of minimum controls that operators of construction sites must use.** Additional measures may be necessary to achieve full compliance with this permit**.**

IV. Summary of options for controlling pollutants

Most controls for storm water discharges from construction activities can be categorized into two groups - sediment and erosion controls, and storm water management measures.

Sediment and erosion controls generally address pollutants in storm water generated from the site during the time when construction activities are occurring. Erosion controls provide the first line of defense in preventing offsite sediment movement and are designed to prevent erosion through protection and preservation of soils. Sediment controls are designed to remove sediment from runoff before the runoff is discharged from the site. Sediment controls should be in place before land disturbance begins. Storm water management measures generally are installed during and before completion of the construction process, but primarily result in reductions of pollutants in storm water discharged from the site after the construction has been completed.

Given below is a list of typical construction site controls.

Sediment and Erosion Controls

Stabilization practices (covering or maintaining an existing cover over soils)

- Temporary seeding
- Permanent seeding
- Mulching
- Sod stabilization
- Vegetative buffer strips
- Protection of trees

Structural practices (devices to divert flow, store flow, or limit runoff)

- Earth dike
- Silt fence
- Drainage swales
- Sediment traps
- Check dams
- Level spreader
- Subsurface drain
- Pipe slope drain
- Temporary storm drain
- Storm drain inlet protection
- Rock outlet protection
- Temporary sediment basins
- Sump pits

Storm Water Management Measures

Onsite infiltration (routing storm water through porous media below the surface of the ground)

- Infiltration trenches
- Infiltration basins

Flow attenuation by vegetation or natural depressions

- Grass swales
- Filter strips
- Trees

Outfall energy dissipation devices

Riprap
Stone or concrete flow spreaders

Retention structures/artificial wetlands (designed to maintain a permanent pool of water)

Wet ponds
Artificial wetlands

Water quality detention structures

Extended detention ponds (drain in 24 to 48 hours)

Housekeeping BMPs

Pollutants that may enter storm water from construction sites because of poor housekeeping include oils, grease, paints, gasoline, concrete truck wash down, raw materials used in the manufacture of concrete (e.g., sand, aggregate, and cement), solvents, litter, debris, and sanitary wastes. Construction site management plans should address the following to prevent the discharge of these pollutants:

- Designating areas for equipment maintenance and repair
- Providing waste receptacles at convenient locations and regular collection of wastes
- On-site equipment wash down/demudding areas, with appropriate control of any washwaters
- Adequately graveled construction access roads
- Providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials
- Providing adequately maintained sanitary facilities

V. Content of the previous Tennessee general permit (9/92-9/97)

Following is a summary of provisions in Tennessee's expired general permit. The permit addressed storm water runoff from construction sites and also, in particular, dewatering of work areas at construction sites. Water collected in work areas may be the result of runoff or groundwater that runs into or seeps into surface excavations.

The permit required the following:

i. that a site-specific erosion and sediment control plan be prepared and implemented for the site (a copy of the plan retained on site);

ii. that storm water discharges not have adverse effects on streams (no visible pollution such as floating scum, oil or an objectionable color contrast in the receiving stream, or toxic effects);

iii. that checks and repairs of controls be performed and certain recordkeeping (checks and repairs weekly in dry periods, and within 24 hours after any rainfall of 0.5 inches or greater); and

iv. that the site plan take into consideration the effects of runoff from the site after the site has been completed, "post construction storm water controls," such as open, vegetated swales and natural depressions; structures for storm water retention, detention, or recycle; velocity dissipation devices to be placed at the outfalls of detention or retention structures or along the

length of outfall channels; these are the same as the storm water management measures described in Part IV above.

In addition to the requirement for a written erosion and sediment control plan, the permit specified that certain construction management techniques, and vegetative and structural controls shall apply to all land disturbance conducted under the permit. These are listed below in short form.

Construction Management Techniques

- a minimum of clearing and grubbing
- sequencing to minimize exposed soil
- staging or phasing of large projects
- erosion and sediment controls in place before site work
- checking and maintenance of controls
- specific individual responsible for erosion and sediment controls

Vegetative Controls

- pre-construction ground cover is not to be removed more than 20 days prior to grading or earth moving
- temporary soil stabilization on unfinished areas (within seven days if soil will be exposed for 30 days or more)
- permanent soil stabilization after final grading

Structural Controls

- diversion of surface water flowing toward the construction area
- proper design of sediment control measures
- use of pipe or lined channel to prevent erosion
- treatment of muddy water from work areas

VI. Rationale for new permit conditions

A. Summary

The Division is proposing a new general permit that in a broad sense will function as the previous general permit:

- it will be a permit to authorize discharges of runoff from construction sites;
- the permit will require that one apply for coverage by submitting a Notice of Intent;
- permittees must develop and implement a site-specific storm water pollution prevention plan;
- the permit requires that certain minimum items be included in the plan; and
- the permit requires regular inspections and maintenance of erosion and sediment controls.

However, we are proposing to make significant changes in several details, because of questions or issues that came up in the administration of the previous general permit, and because of more recent EPA guidance.

B. Issues evident in administration of the previous general permit

Following is a list of issues - administrative, regulatory and technical - that have needed special attention during the past five years of regulating construction sites by the use of the general permit. The Division intends to address these issues in the reissued permit.

Issue 1: Who is required to obtain the storm water construction general permit? Property owner, developer, contractor(s), subcontractors?

Proposal:

The State proposes that "operators" of the construction site be required to obtain permit coverage. The fundamental reason for this proposal is that federal NPDES regulations specify that "operators" of discharges obtain the NPDES permit.

The EPA, in its reissued (2/17/98) construction general permit, requires that operators of the construction site obtain coverage under the permit. EPA interprets "operator" as follows:

> ...to mean any party associated with a construction project that meets either of the following two criteria: (i.) the party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; and (ii.) the party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the storm water pollution prevention plan or comply with other permit conditions).

Contractors and subcontractors who are under supervision of the general contractor are not considered operators and would not need to submit NOIs. However, they will have to certify within the plan that they understand the terms and conditions of the permit.

The proposed permit specifies that all operators who are known at the time of submission of the NOI apply and sign on the same NOI form. NOIs must be submitted at least ten days before the start of any earth-clearing activities. Operators identified after the NOI is submitted shall have to submit their own NOI in which they will refer to the previous NOI and existing permit number for the project.

Issue 2: How will the Division permit construction activities of less than five acres that are a part of a larger common plan of development or sale? As an example, a developer initially prepares a relatively large construction site (e.g. by installing roads and utilities and performing initial grading) on which subsequent developers or builders construct on small parts. Who is the permittee for the smaller construction activities?

Proposal:

The Division proposes that the initial site developer and the associated contractor(s) obtain and maintain the construction activity runoff permit. Other developers and builders on portions of the larger development generally will not have to become permittees.

There are at least two reasons for our having only the primary developer and contractors to obtain the permit. One reason is to simplify for the Division the paperwork associated with permitting construction sites. If every person constructing a house in a new subdivision had to obtain his own NPDES permit, this would mean in some cases that individual homeowners would have to apply for the permit, along with the builder contracted to do the work. This could mean dozens of NOIs to be filed for one development. A second reason is that a large construction site can need a comprehensive plan for erosion and sediment controls, particularly for sediment controls. For instance, a sediment pond that will serve as a landscaped pond after finish of development would need to be considered for the site as a whole.

Construction activities that must be permitted are the following:

> construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than five acres of total land area and which are not part of a larger common plan of development or sale. 40 CFR 122.26(b)14(x)

According to this definition, smaller portions of a site under construction <u>are</u> required to be permitted for storm water discharges if they are a part of the larger common plan of development or sale.

However, as presented above, the Division intends that only the site's initial developer and contractor(s) actually apply for and obtain the construction storm water permit. The Division considers that the initial developer will continue to be responsible for implementing and maintaining erosion and sediment controls for the entire site, including portions sold to other parties during an active construction phase. Developers have in many cases transferred erosion and sediment control responsibilities via the deed transferring title to the piece of property.

The proposed permit does not require that builders on smaller (less than five acres) portions of the site apply for permit. A possible exception to this is discussed in Issue 3 below.

Please note that these "partial site" operators will have erosion and sediment control responsibilities that must be included in a storm water pollution prevention plan, and the plan must specify exactly who will implement which erosion and sediment controls.

On the matter of individual homeowners within a subdivision development, we quote from EPA:

> Once a residence has been completed and occupied by the homeowner (or tenant), future activities by the homeowner on their individual lot are not considered part of the original common plan of development (which was the industrial activity of building houses on each subdivided lot). After a home is occupied by the homeowner or a tenant, future construction activity on that particular lot is considered a new and distinct project and is compared to applicable disturbed acreage limits for permit applicability.

For example, if homeowner decides to install a swimming pool after occupying the house, only the disturbed area on their lot--not the total acreage of the subdevelopment--is considered for determining whether a permit is needed. Likewise, demolition and reconstruction of individual houses originally built as part of a common plan of development, including those destroyed or damaged by fire or natural disasters, are also considered to be "new" plans of development/redevelopment, and not part of Larger Common Plan.

Issue 3: When a developer has sold all parcels of land on a large site, and no longer is involved with activities on site, does that developer continue as an operator and permittee for the construction site and the subsequent construction that occurs on the site?

Proposal:

Yes, the developer will continue as a permittee at the site. He or she is able to terminate permit coverage under certain conditions. Also, the developer's contractor(s) will typically be permitted, and similarly are able to terminate permit coverage under certain conditions.

It is important to keep in mind in this situation that the pollution prevention plan for such a development specifies who will be implementing each of the erosion controls. Thus, when a developer has sold all parcels of a larger site, there will exist a plan for the one or more partial site operators that are continuing to work on the land.

A developer would be able to terminate his or her coverage under the permit if all the site has been stabilized with perennial vegetation and the total unfinished area of the common plan has dropped below five acres. The initial developer could also terminate coverage under the permit if another party or multiple other parties submit NOIs to the Division for all the unfinished portions of the project. Simultaneously or afterward, the initial developer would be able to request and receive termination of permit coverage. This type of transfer of permit responsibility is one that the initial developer would have to arrange. Given below are illustrations of these two permitting scenarios.

A developer has taken a 50 acre tract of land, installed roads and utilities and constructed and sold ten new houses on ten one acre lots. He has sold a 25 acre block to Builder A who has completed structures on 15 acres and has the other 10 acres divided into 20 1/2 acre lots. Builder B owns 15 acres, on which 24 1/2 acre lots now have houses, with six 1/2 acre lots unbuilt. This development encompasses 50 acres with over 45 parcels in sizes of 1/2 acre, one acre, and two to five acres, delineated on a plan filed with the local land use planning authority. There are a total of at least ten acres of the site that will not be disturbed because they are set aside as open space.

From this example, there are two means by which developer may terminate his coverage under the permit.

Case 1. When the total remaining area of the larger common plan of development or sale ("Larger Common Plan") becomes less than five acres, the developer may terminate permit coverage.

The total remaining area of the site can be recalculated if the following two conditions exist:

i. all areas of the site achieve final stabilization or are turned over to a homeowner; this essentially means that permit coverage at the site could be terminated; and
ii. the total remaining area of the Larger Common Plan is less than five acres.

At the point in time described above, if we assume that all built sites have been turned over to individual homeowners, there are still 12 acres potentially to be disturbed, and thus permit coverage may not be terminated. The construction of even one house on one of the remaining lots would necessitate permit coverage because it is a part of a larger common plan of development that is capable of disturbing at least five acres (twelve in this case). A permit is not necessary if the total acreage remaining to be built upon out of the Larger Common Plan is less than five acres. For instance, if Builder A completes 17 of his remaining 20 lots, and these are completely stabilized and/or turned over to the individual homeowner, then there remains on the Larger Common Plan nine 1/2 acre lots - Builder A with three and Builder B with six. The total remaining area is 4 &1/2 acres, less than five acres, and permit coverage at this site may be terminated.

Case 2. Since the original developer has sold all portions of the site, he may now have no responsibilities at the site other than the NPDES permit. Since he is no longer working at the site, the pollution prevention plan may leave him without any storm water responsibilities.

If Builder A and Builder B submit NOIs and receive permit coverage for their portions of the 50 acre development, then the original developer may request termination of his coverage under the general permit. This will not change the fact that the entire 50 acre site is a common plan of development. Builders A and B will not be able to terminate permit coverage until all areas of the site are stabilized and/or turned over to individual homeowners and the remaining area of the sites to be developed is less than five acres.

Issue 4: Shall NOIs for construction activity general permit be submitted to the central office or to Environmental Assistance Center (EACs)?

Proposal:

Over the past five years, NOIs have been received by the central office. The central office processes the NOIs and then forwards the NOIs to the field offices. EACs receive NOIs a week or more after the central office. It is critical to EACs to have early access to the information in NOIs. Because of this, we will begin to have these sent to the EACs.

According to a federal numbering system, Tennessee has assigned permit numbers for construction sites in the format TNR100001, TNR100002, TNR100003, etc. R indicates a storm water general permit, and the next two digits, 10, indicate construction activity.

The proposed numbering arrangement for this permit is as follows.

Office	Permit numbers
EAC-M	TNRM00001, TNRM00002
EAC-J	TNRJ00001, 00002, etc.
EAC-CL	TNRCL0001, 0002, etc.
EAC-CK	TNRCK0001, 0002, etc.
EAC-N	TNRN00001, 00002, etc.
EAC-CH	TNRCH0001, 0002, etc.
EAC-K	TNRK00001, 00002, etc.
EAC-JC	TNRJC0001, 0002, etc.

There are about 1200 permits Statewide that have been covered under the Tennessee Storm Water Multi-Sector General Permit (TMSP). These have been given numbers TNR059000 - 9999 and TNR052900 - TNR053000. Many of these sites will still be active when this new construction permit is issued and will be switched from the TMSP to the new construction permit. The last four digits of the permit number will remain the same as under the TMSP, but the first five will be changed according to the appropriate field office.

Issue 5: Can a local government perform the NPDES permitting of construction sites?

Proposal:

Some local governments have their own approval process for construction activities, and that process typically includes review of erosion and sediment controls. Thus, it has been suggested that the local government take over the NPDES permitting of construction sites.

The federal and state rules under which NPDES permits are issued in Tennessee do not presently allow a local government to issue NPDES permits.

Issue 6: The possibility of combining ARAP and storm water application forms, or including questions about the one on the application form for the other, to prompt permittees and the Division to see that both sets of requirements are addressed

Proposal:

One must obtain an Aquatic Resource Alteration Permit (ARAP) whenever construction work will cause an alteration to streams or wetlands. It is common for construction projects over five acres to involve alterations to waters of the state that should be permitted with the ARAP permit.

The Division will include questions on the construction activity NOI that provide both the Division and the permittee information about the need for an aquatic resource alteration permit at the same site.

Issue 7: Whether or not the permit should specify a certain size storm event as basis for design of erosion and sediment controls.

Proposal:

The previous general permit states "erosion and sediment control measures shall be designed according to the size and slope of disturbed or drainage areas, to detain runoff and trap sediment." Thus, the previous general permit does not specify a particular size storm for which the erosion and sediment control measures shall be sized.

The Division is proposing that erosion and sediment controls be designed to control the runoff from a 2-year, 24 hour storm, as a minimum. In Memphis, Nashville, Chattanooga and Knoxville, these amount to 4.0 inches/24 hours, 3.5 inches/24 hours, 3.6 inches/24 hours, and 3.2 inches/24 hours, respectively. Attached as Appendix 1 is a chart of the 2-year, 24 hour storm in Tennessee.

C. New issues to be addressed

Issue 8: Proposed federal rules are lowering the size threshold for construction sites that need to obtain a storm water runoff permit. Proposed Phase II rules state that construction sites of one acre or more will require permitting under the NPDES system.

Proposal:

This permit does not explicitly address construction sites of less than five acres; however, language in the permit at Section I.B.1 allows sites smaller than five acres to be covered if the Director of the Division of Water Pollution Control deems necessary because the site is causing pollution of waters of the State, or is likely to do so, or if there are changes in rules that require the smaller sites to obtain an NPDES permit.

Issue 9: The permit should not allow, or if so, should include special requirements for, discharges into waters listed per Section 303(d) and discharges into high quality (tier II or tier III) waters.

Proposal:

The Division proposes to allow such discharges under this permit, with special requirements.

The State regularly assesses the quality of waters of the State, and pursuant to Section 303 of the Federal Clean Water Act, lists waterbodies that are polluted and are not supporting the designated uses for those waters. For each listed waterbody, the cause(s) of the impairment are determined and listed. For a significant number of stream miles, the impairment is due in whole or in part to suspended solids and/or siltation.

High quality waters include waters designated by the Water Quality Control Board as Outstanding National Resource Waters (ONRWs) (Tier III waters) and other surface waters identified by the Department as high quality because of water quality, ecological, recreational, scenic or geologic characteristics (Tier II waters).

The State Water Quality Control Act, and regulations in support of the Act, are designed to abate existing pollution of waters of the state and to reclaim polluted waters.

With the above in mind, the Division considers it necessary and reasonable to enforce a higher standard of protocol and controls in permitting storm water discharges from construction sites to waters impaired by siltation or suspended solids, to ensure that those discharges will not result in an increased loading of sediment to those impaired waters. We propose the same set of upgraded requirements for discharges to high quality waters.

The Division proposes the following:

- When the Division reviews an NOI, we will determine if the discharge is entering waters listed per 303(d) for suspended solids or siltation, or is entering high quality waters. If so, the Division will notify the applicant of special requirements of the permit.

- Requirement that storm water pollution prevention plans be submitted to the Division prior to beginning of construction activities

- Monthly monitoring of storm water discharges for settleable solids (ml/l), total suspended solids, turbidity (NTUs) and volume of flow. The permit will require monitoring during a qualifying storm event, or where storm water is collected and detained, monitoring of discharge from the detention structure. A qualifying event will be 0.5 inches of rain within a 48 hour period.

- Upstream monitoring monthly for the same parameters as above.

- Requirement to report results of monitoring monthly. Along with the monitoring data, the permittee will report the soil type and average slope of the drainage area of each outfall and the name of the receiving water.

Issue 10: There should be mechanisms in the general permit to provide protection of any threatened and endangered species and/or critical habitat in the vicinity of the construction project.

Proposal:

We will include two mechanisms in the permit to protect listed species. One, the permit will not authorize discharges and storm water related activities that are not protective of State and Federally-listed threatened and endangered ("listed") species or designated critical habitat. Two, one of the steps in preparing and reviewing NOIs will be determining if there are listed species near the site or downstream of the construction site within 15 miles. This process will ensure that the permittee is aware of any nearby listed species or critical habitat and, if so, that violations of this permit and damage to water quality may entail greater penalties than otherwise.

The Division's view is that where a construction site operator is complying with the terms of the general permit, the runoff from the site will not have a significant impact on the quality of the receiving stream and will not have a negative impact on threatened and endangered species.

D. Additional proposed permit conditions and rationale

Several other requirements in the permit, not addressed above in the issues and proposals, are included in this permit that were not in the State's previous permit.

i. permittee will be required to provide some method to minimize tracking dirt off of construction sites onto nearby roads;

ii. several housekeeping requirements that specifically address petroleum products or hazardous materials or hazardous waste that might be located at construction sites; the permit will require that the permittee(s) have measures in place to prevent water pollution from such sources;

iii. adding a notice of termination (NOT) form.

VII. Permit issuance procedures

A. Administration

The general permit drafted is in accordance with applicable NPDES regulations (40 CFR 122, 123, 124 and 125), the Tennessee Water Quality Control Act (§ 69-3-101 et seq.), and the Department's permit issuance regulations (Rules of the Department 1200-4-1-.05).

B. NPDES procedures

The applicable regulations for issuance of this general permit are 40 CFR 122.28, 123.44 and fact sheet requirements at 124.8 and 124.56. References are to the 1997 Code.

C. Schedule for permit issuance

Draft permit transmitted to EPA..... February 11, 1999

Public Notice..... February 16, 1999 - April 5, 1999

Public Hearings.....

City	Place	Date	Time
Memphis	University of Memphis, Engineering Bldg. Auditorium (south of Central Ave., 1st bldg. west of Zach Curlin Street)	March 22, 1999	1:00 p.m. CST
Jackson	362 Carriage House Drive; Conference Room A	March 23, 1999	10:00 a.m. CST
Knoxville	2700 Middlebrook Pike; enter rear of building.	March 24, 1999	1:00 p.m. EST
Nashville	L & C Tower, 17th Floor, 401 Church Street	March 25, 1999	1:00 p.m. and 7:00 p.m. CST

Comments may also be submitted in writing by end of day April 5, 1999, to the address in subpart D below, or via e-mail to **rhaley@mail.state.tn.us**.

Permit Issuance..... April 15, 1999

D. Consideration of comments and permit issuance decisions

The Division of Water Pollution Control proposes to issue this general permit with the described effluent limitations, monitoring requirements, management plan items and any other requirements. These conditions are tentative and open to comment. Interested persons are invited to submit comments for consideration. Comments should be submitted to the following address:

Attn: Robert Haley
Tennessee Division of Water Pollution Control
L&C Annex, 6th Floor
401 Church Street
Nashville, TN 37243-1534